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## V. ZOOLOGY, ETC.

## COLLECTING NOTES ON KANSAS COLEOPTERA.

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Read (by title) before the Academy October 28, 1897.

An experience of eighteen years in collecting coleoptera in Kansas would naturally lead to the discovery of several good collecting grounds, and to many interesting observations on the abundance or scarcity of certain species for one or more years.

I have found my most interesting and profitable ground on the salt marshes or flats of Wilson county in southeastern Kansas, and Republic and Mitchell counties in north central Kansas; in the valleys of the Verdigris river in Wilson county, of the Republican river in Jewell county, the Smoky Hill river in Wallace county, and the Arkansas river in Hamilton county; the two latter in extreme western Kansas.

I have also collected for years at the electric lights at McPherson. Another most interesting and profitable locality is in the sand-hills twenty miles southwest of McPherson. In these sand-hills I have taken, during the past eight years, *Cicindela scutellaris*, *formosa*, and *venusta*, all beautiful species; *Stephanucha pilipennis* Kraatz, one of the rarest scarabeids; *Serica curvata* Lec.; *Canthon nigricornis* Say; *Ammodonus fossor* Lec., and *Chalcodermus collaris* Horn. I took from the electric lights last season for the first time a few specimens of *Stenomorphus rufipes* Lec., a southwestern species, but never recorded as taken in this state. McPherson is probably near its northern limit. I also took at the electric lights, in June of last year, for the first time, four specimens of *Lachnostenra spreta* Lec., the first capture of this species in the state. Another rare species taken at the lights was *Lachnostenra ulkei* Smith; but only two or three specimens were captured. *Lachnostenra bipartita* Horn was taken in considerable numbers, both at the lights and in early evening flight. Another beetle taken sparingly at the electric lights in May and June was *Nothopus zabroides* Lec.; this place is probably near its southeastern limit. *Platynus texanus* Lec. also occurred sparingly at the lights for the past two years. Each year a few of the handsome *Ereutes sticticus* Linn. are also taken from the electric-light globes.

One of my most interesting collecting grounds is at the range of sand-hills parallel to the Arkansas river in Reno county, and about eight miles north of the river. These hills or dunes are blown about by the wind, and in many places are excavated by the air currents to a depth of 75 to 150 feet; and the fine white sand is piled in huge dunes, usually north of the excavation. Visits to this region made in May and June are usually well rewarded. The season of 1896 I took *Cicindela scutellaris* Say and *Cicindela formosa* Say in numbers, the former species being the more abundant. I also took the beautiful *Cicindela venusta* Lec. with the two preceding species, but less abundant. Some seasons only a few specimens are taken.

Beginning with the collecting season of 1891, I have each year taken a few specimens—never more than six or eight in a season—of the rare *Stephanucha pilipennis* Kraatz, first described in 1888, from Nebraska. I have taken it only

from May 1 to May 20, crawling sluggishly over the sand, and have found occasionally dead perfect specimens. Warm evenings during the latter part of April will probably furnish the best collecting results for this species. Another handsome and desirable insect taken in May and June in this locality is *Crema-stochilus nitens* Lec. During the cooler parts of the day it can be picked up from the bare sand, but during the hottest part of the day it must be handled quickly, as it becomes active and is a quick flier.

One of the best finds, *Ammodonous fossor*, was made in this locality May 16, 1897. After collecting over the hills for about three hours, I went up the side of a sand-hill, about twenty feet from the bottom of a blow-out, and sat down to eat a lunch. I soon saw a small round tenebrionid running over the sand, and captured it. It was difficult to see, as it was almost the exact color of the sand, and only the closest observation would distinguish it from its surroundings. By digging out depressions left by cattle in passing over the sand, and examining the few plants growing around, I soon took twenty-two specimens from an area of ten feet square. Specimens were sent to Dr. George H. Horn, of Philadelphia, and through his kindness, and that of Mr. Chas. Liebeck, were identified as above. The species occurs in sandy locations in Maryland and New York, and in California and Arizona; although the specimens from the extreme west are of larger size.

In this locality, in 1891, I took *Chalcodermus collaris* Horn quite abundantly; but have not since seen a single specimen.

The valley of the Smoky Hill river at Wallace, Kan., within twenty miles of the Colorado line, is an attractive locality for the collector of insects. The clay bluffs south of the Smoky furnish a home and feeding-ground for the king of Cicindelidæ, *Amblychila cylindriformis* Say. Three short visits to this locality in as many years were rewarded with the capture of a few specimens of this desirable insect. At rare reasons they are quite abundant; but usually only a few can be taken each night. Another desirable beetle I took by beating the willows on the banks of the Smoky was *Poecilonota thureura* Say. *Calosoma obsoletum* Say is found in alfalfa fields and along old roads in the latter part of July and during August. Beating thistles near Wallace resulted in the capture of eight or ten specimens of rare *Clerus cordifer* Lec. Under old cow chips, near the bluffs, were taken a number of the curious and sluggish *Ologyptus anastomosis* Say; also numbers of *Trimytilis pruinosa* Lec., and a few *Ophyrastes vittatus* Say were found under the same shelter.

Almost directly south of Wallace and distant about 100 miles is Coolidge, in the Arkansas valley. I collected in this locality one day, July 7, 1897. The general insect fauna is very similar to that at Wallace, although several species occur at Coolidge that are not taken at the former place. In an alfalfa field adjoining the town, from which the hay was being raked, I took a fine series of *Calosoma triste* Lec. This species is evidently a variable one, as the elytra of one specimen will be almost smooth, while that of the next one taken would approach the sculptured markings of *obsoletum*.

From horse droppings I took a fine lot of *Canthon depressipennis* Lec., and from thistle heads dislodged *Euphoria kernii* Hald. and *inda* Linn., in proportion of two of the latter to one of the former. But one specimen of the black variety of *kernii* was taken. Beating vegetation alongside small rivulets and depressions in the prairie yielded numerous specimens of *Monoxia consputa* Lec., and a few *Diabrotica tricincta* Say. At Garden City, fifty miles east of Coolidge, a few minutes' beating of plants along the roadside yielded numerous specimens of *Copturus adspersus* Lec., *Anthonomus squamosus* Lec., and *Smicronyx vestitus* Lec.

The Verdigris valley in Wilson county yielded a number of desirable things to the collector of coleoptera. April 20 to 30 marks the appearance of *Lachnostenra calceata* Lec., the most common scarabeid in that region. In favored localities, on still evenings, they swarm over the tender shoots of the young oaks. By jarring these, dozens of the insects fall to the ground, and by the use of the lantern are easily picked up and transferred to the cyanide jar. Other *Lachnostenra* occurring at about this time are *hornii* Smith, *gibbosa* Burm., *crenulata* Frch., *vehemens* Horn, and *crinita* Burm. At about the same time, upon a species of dock that grows over bottom land, can be taken numbers of the beautiful *Phytonomus eximius* Lec. They are very shy, and drop quickly to the ground on the first alarm. The open mouth of the cyanide bottle should be under them before the plant is touched. From the opening leaf-buds of the young hickories may be beaten *Conotrachelus nenuphar* Herbst. and *affinis* Boh.; and the sap from stumps of freshly cut hickory trees attracts numbers of *Colastus semitectus* Say, *Soronia undulata* Say, *Perthalygra murrayi* Horn, *Pocadius helvolus* Er., *Cryptarcha concinna* Mels., and *Bactridium striatum* Lec. Under stones near the bluffs bordering the valley may be found rather sparingly *Pasimachus californicus* Chd., and, resting under the same shelter, an occasional *Diplotaxis corvina* Lec. While collecting over the tree-covered stony knoll near Benedict, in this county, in September, 1896, I took a single fresh specimen of *Nomaretus cavicellis* Lec., the only specimen of this beautiful carabid I ever took south of the Kansas river at Manhattan.

Collecting at Salina, Kan., in 1884 and 1885, yielded a number of apions, identified by Mr. H. C. Fall of Pasadena, Cal. Among them were *Apion segnipes* Say, rather common; *attenuatum* Smith, *griseum* Smith, and *occidentale* Fall, MS., occurring rarely, and all new to the Kansas list. On the Kansas and Nebraska line, near Superior, Neb., in the latter part of May, 1895, I took *Apion minor* Smith, *spinipes* Fall, MS., and *nebraskense* Fall, MS., a few specimens of each. Near Rago, Kingman county, Kansas, August 15, 1896, I took a half dozen specimens of *Apion modestum* Smith, a species also new to the list of Kansas coleoptera. In the same locality I took *Anthonomus moleculus* Casey, *Orthoris crotchii* Lec., and *Pseudohazis farcta* Lec.

Some seventy-five miles southwest of Rago, at Belvidere, Kan., I took, August 16, numbers of *Plectrodera scalarator* Say. This handsome borer was easily taken about sunset on the leaves and twigs of young willows and cottonwoods. Other desirable species taken at this locality were: *Lappus lividus* Casey, *Mitostylus tenuis* Lec., *Anthonomus tectus* Lec., *Cæliodes asper* Lec., *Zygogramma disrupta* Rogers, *Zygogramma heterothecæ* Linell.

*Cicindela violacea* Fab., the beautiful blue or green tiger beetle, is taken in May or June in the wooded valleys of eastern Kansas. I took two or three specimens near Benedict, Wilson county, southeastern Kansas, last season. Have never taken it west of Manhattan, at the junction of Big Blue and Kansas rivers.